MODERN OFFICE BUILDING UTILITIES ALTERNATIVES

Issues to be resolved by:

- customer definition

- assumption

- parametric inclusion in study

1.0 Electrical Loads Issues

Resolution of the following questions is needed in each of the following three categories:

- Critical loads (ie: those that can tolerate no interruptions)
- Essential loads (ie: those that can tolerate only brief interruption without endangering the mission)
- Utility loads (ie: general office space, technical maintenance, etc.)
- 1.1 What are the magnitudes of the connected loads?
- 1.2 What are the duty cycles of the connected loads?
- 1.3 What is the required quality of available power ie: when is it considered not available?
- 1.4 How many outages are acceptable per day, week, month and/or year, and for what maximum duration?
- 1.5 Do the loads have any unusual characteristics or requirements, such as power bursts, cycling, etc.
- 1.6 Is 400 Hz or DC power required?
- 1.7 What is the geographic distribution of critical power use within the electronic centers?
- 1.8 Are there any battery-operated communication systems?

2.0 <u>Issues Related to Electical Power</u>

- 2.1 What are the statistics of the locally-available commercial power?
- 2.2 Is on-site generation permitted?

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- 2.3 Shall co-generation be considered?
- 2.4 What is the ability of the facility operator to control the tenants relative to:
 - a) load growth, and
 - b) ability to shed loads?

3.0 Environmental Control Issues

- 3.1 Are there any special architectural features to be taken into account, such as vast window areas, underground construction, etc.?
- 3.2 What is the climate at the facility site?
- 3.3 What are the surface and geological conditions at the site?
- 3.4 What are the requirements on temperature and humidity level and tightness of control?
- 3.5 What are the cleanliness requirements?

4.0 General Issues

- 4.1 Are there any restrictions on the treatment of other utilities (water, waste, sewage)?
- 4.2 Are there any restrictions or dictates on fuels and what are their availabilities (natural gas, oil, coal, renewable energies)?
- 4.3 Are there any defined threats to be withstood or mitigated?
- 4.4 What is the expected level and quality of maintenance?
- 4.5 What are the timing requirements on
 - a) the study
 - b) construction and occupancy of the facility
 - c) life (amortization period) of the facility?